Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

Claim 1 (original): A method for identifying a substance that down-regulates an immune response in an animal, comprising determining whether said substance inhibits an interaction between factors in the CD26 signaling pathway.

Claim 2 (original): The method of claim 1, comprising determining whether said substance inhibits:

(a) the interaction between CD26 and caveolin-1;

(b) the interaction between caveolin-1 and Tollip; or

(c) the interactions between caveolin-1, Tollip, and IRAK-1.

Claim 3 (currently amended): The method of claim 1 ~~or 2~~, wherein said interaction(s) are protein:protein binding.

Claim 4 (currently amended): The method of claim 1 ~~any one of claims 1-3~~, wherein said interaction(s) are determined by one or more assay(s) selected from the group consisting of immunoprecipitation, Western blotting, affinity chromatography, fluorescence microscopy, and two hybrid assay.

Claim 5 (original): The method of claim 1, comprising determining whether said substance inhibits:

(a) the phosphorylation of caveolin-1;

(b) the phosphorylation of IRAK-1;

(c) the activation of NF-κB; or

(d) the up-regulation of CD86 expression.

Claim 6 (currently amended): The method of claim 1 ~~any of claims 1-5~~, comprising contacting cells or extracts from cells with said substance.

Claim 7 (original): The method of claim 6, wherein said cells are T cells or monocytes.

Claim 8 (currently amended): The method of claim 6 ~~claims 6 or 7~~, wherein said cells recombinantly express a factor in the CD26 signaling pathway.

Claim 9 (currently amended): The method of claim 6 ~~any one of claims 6-8~~, wherein said cells comprise a reporter gene the expression of which is responsive to a factor in the CD26 signaling pathway.

Claim 10 (currently amended): The method of claim 1 ~~any of claims 1-9~~, wherein said substance is part of a library of substances.

Claim 11 (original): A kit for identifying a substance that down-regulates an immune response in an animal, comprising at least one agent which may be used to determine the level or function of at least one factor in the CD26 signaling pathway.

Claim 12 (currently amended): The kit of claim 11 ~~15~~, comprising at least one agent for determining whether a substance inhibits:

(a) the interaction between CD26 and caveolin-1;

(b) the interaction between caveolin-1 and Tollip;

(c) the interactions between caveolin-1 ~~caveolinin-1~~, Tollip, and IRAK-1

(d) the phosphorylation of caveolin-1;

(e) the phosphorylation of IRAK-1;

(f) the activation of NF-κB; or

(g) the up-regulation of CD86 expression.

Claim 13 (currently amended): A method ~~Use of an immunoregulatory agent that inhibits the CD26 signaling pathway in the manufacture of a medicament~~ for treating, ameliorating, or preventing a disorder related to an immune response in an animal, comprising administering to animal in need thereof an immunoregulatory agent that inhibits the CD26 signaling pathway.

Claim 14 (currently amended): The method ~~use~~ of claim 13, wherein said immunoregulatory agent inhibits:

(a) the interaction between CD26 and caveolin-1;

(b) the interaction between caveolin-1 and Tollip;

(c) the interactions between caveolin-1, Tollip and IRAK-1;

(d) the phosphorylation of caveolin-1; or

(e) the phosphorylation of IRAK-1.

Claim 15 (currently amended): The method ~~use~~ of claim 13, wherein said immunoregulatory agent is a small interfering RNA (siRNA).

Claim 16 (currently amended): The method ~~use~~ of claim 15, wherein said siRNA is targeted to caveolin-1 or Tollip.

Claim 17 (currently amended): The method ~~use~~ of claim 16, where said siRNA comprises the sequence of SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, or SEQ ID NO:10.

Claim 18 (currently amended): The method ~~use~~ of claim 13 ~~any of claims 13-17~~, further comprising administering an additional therapeutic agent.

Claim 19 (currently amended): The method ~~use~~ of claim 13 ~~any of claims 13-18~~, wherein said disorder related to an immune response ~~in need of immune suppression~~ is an autoimmune disorder, an inflammatory disorder, or transplant rejection.

Claim 20 (original): A pharmaceutical composition comprising an immunoregulatory agent that inhibits the CD26 signaling pathway and a pharmaceutically acceptable carrier.

Claim 21 (original): The pharmaceutical composition of claim 20, wherein said immunoregulatory agent is an siRNA.

Claim 22 (original): The pharmaceutical composition of claim 21, wherein said siRNA is targeted to caveolin-1 or Tollip.

Claim 23 (original): The pharmaceutical composition of claim 22, where said siRNA comprises the sequence of SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, or SEQ ID NO:10.

Claim 24 (original): A siRNA targeted to caveolin-1 or Tollip.

Claim 25 (original): The siRNA of claim 24, where said siRNA comprises the sequence of SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, or SEQ ID NO:10.

Claim 26 (original): A method for treating, ameliorating, or preventing a disorder related to an immune response in an animal, comprising administering to an animal in need thereof a substance that inhibits an interaction between factors in the CD26 signaling pathway.

Claim 27 (original): A method for identifying a substance that up-regulates an immune response in an animal, comprising determining whether said substance enhances an interaction between factors in the CD26 signaling pathway.

Claim 28 (original): The method of claim 27, comprising determining whether said substance enhances:

(a) the interaction between CD26 and caveolin-1;

(b) the interaction between caveolin-1 and Tollip; or

(c) the interactions between caveolin-1, Tollip, and IRAK-1.

Claim 29 (original): The method of claim 27, comprising determining whether said substance enhances:

(a) the phosphorylation of caveolin-1;

(b) the phosphorylation of IRAK-1;

(c) the activation of NF-κB; or

(d) the up-regulation of CD86 expression.

Claim 30 (original): A kit for identifying a substance that up-regulates an immune response in an animal, comprising at least one agent which can be used to determine the level or function of at least one factor in the CD26 signaling pathway.

Claim 31 (currently amended): The kit of claim 30, comprising at least one agent for determining whether a substance enhances:

(a) the interaction between CD26 and caveolin-1;

(b) the interaction between caveolin-1 and Tollip;

(c) the interactions between caveolin-1 ~~caveolinin-1~~, Tollip, and IRAK-1

(d) the phosphorylation of caveolin-1;

(e) the phosphorylation of IRAK-1;

(f) the activation of NF-κB; or

(g) the up-regulation of CD86 expression

Claim 32 (currently amended): A method ~~Use of an agent that enhances the CD26 signaling pathway in the manufacture of a medicament~~ for treating, ameliorating, or preventing a disorder related to an immune response in an animal, comprising administering to animal in need thereof an agent that enhances the CD26 signaling pathway.

Claim 33 (currently amended): The method ~~use~~ of claim 32, wherein said agent enhances:

(a) the interaction between CD26 and caveolin-1;

(b) the interaction between caveolin-1 and Tollip;

(c) the interactions between caveolin-1, Tollip and IRAK-1;

(d) the phosphorylation of caveolin-1; or

(e) the phosphorylation of IRAK-1.

Claim 34 (original): A pharmaceutical composition comprising an agent that enhances the CD26 signaling pathway and a pharmaceutically acceptable carrier

Claim 35 (original): A method for treating, ameliorating, or preventing a disorder related to an immune response in an animal, comprising administering to an animal in need thereof a substance that enhances an interaction between factors in the CD26 signaling pathway.